



## Case report

## Asphyxial suicide by inhalation of chloroform inside a plastic bag



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## ABSTRACT

Asphyxia suicide by placing a plastic bag over the head in addition with inhalation of gases or use of sedative substances is an unusual method of committing suicide, but frequently referenced by right to die groups in the Internet. This article reports 2 suicides in which chloroform was used to induce unconsciousness and subsequent asphyxia by placing the head in a plastic bag. Case histories of 2 males, ages 23 and 28, are described with special emphasis on characteristics death related to suffocation using plastic bags and chloroform. The final remarkable point in both cases is that the victims previously searched the WEB for instructions of suicide methods. The importance of the phenomenon of misuse of Internet by young people who commit suicide is stressed.

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## 1. Introduction

Asphyxiation using a plastic bag is an unusual suicide method that has been reported in the literature. In some cases concomitant use of drugs or alcohol have been documented. Other methods described in the literature include the use of inert gases like propane or helium to hasten asphyxiation by displacing air gases (including oxygen) or of sedation by doses of narcotic medication.

The 2 cases reports a suicide committed by inhaling chloroform through an impregnated piece of cotton and a surgical mask inside a plastic bag. In both cases the men followed instructions taken from web pages, which described different ways to commit suicide. According to a review of the literature review, there are very few cases of chloroform inhalation inside a plastic bag placed over the head in a context of suicide reported and described. However, references have appeared of chloroform inhalation in autoerotic asphyxiation deaths, homicides and chloroform suicide without a plastic bag.

## 2. Case report 1

The victim was a 23-year-old man, single, who was a student of professional gastronomy. Last time he was seen alive was at 2:30 AM when he arrived home after a discussion with his girlfriend. His sister found him dead at 6:00 AM inside his room, lying

supine on his bed. The room was inspected and the body was found with a white plastic bag over the head. A humid piece of cotton and a 250 ml empty amber glass bottle of chloroform were also found on a desk beside the bed. There was a romantic suicide letter of farewell found at the scene on a flat personal computer screen. On the same computer crime investigators found recorded in the section “favourites” many web pages related with ways to commit suicide. As important medical records, the victim had important loss of vision of the right eye related with retinal detachment and previous suicidal intent by ingest of a pesticide at age 13.

At autopsy the presence of a white plastic untied bag over his head in contact with mouth and nose was documented (Fig. 1). Inside the oral cavity a piece of humid cotton was found (Fig. 2). No evidence of injury was noted other than marked pulmonary edema and unspecified related hypoxic findings such as pleural and epicardial petechiae and generalized visceral congestion. Other findings were severe hyperaemia of trachea and bronchus and stomach. Toxicological analysis of the blood and vitreous by flame ionized detector/head space gas chromatography revealed the presence of chloroform and hexane. Ethyl alcohol was detected at level of 183 mg/dl in blood and 161 mg/dl in vitreous. No evidence of abuse of other drugs was identified.

## 3. Case report 2

The decedent was a 28 years old man, single, call centre employee, who was found dead by his father at 04.00 AM. Last time he was seen alive was at 09:00 PM upon returning home from his job. The body was found lying left decubitus position on the bed

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**Fig. 1.** White plastic bag over the head in contact with nose and mouth found in autopsy.

inside his room. The room was locked from inside and the body was found with two black plastic garbage bags securely fastened with adhesive tape around his neck. Over his face two white surgical masks were found. In the same bed an empty opened 125 ml brown glass bottle of chloroform was found. Beside him on a small desk there was a suicide note written on paper. The note contained printed lyrics of a farewell love song and instructions of use of chloroform as a suicide method (dose, time of exposition, availability, reliability, and instructions of use), previously obtained from a web page.

A complete autopsy was performed including toxicological analysis. At external examination two masks around the neck were found, which were previously over mouth and nose (Fig. 3). Severe facial congestion, severe congestion of the viscera, pleural petechial, severe hyperaemia of trachea, bronchus and stomach and pulmonary enema were found grossly. Toxicological analysis of the blood and vitreous by flame ionized detector/head space gas chromatography revealed the presence of chloroform and hexane. Chloroform concentration in the blood was 259 µg/ml. Results of toxicological examinations for alcohol, methanol, and drug abuse were negative.

#### 4. Discussion

Deaths by plastic bag suffocation can be documented in different forensic contexts. Accidental deaths are mainly related

with children playing with bags, and autoerotic asphyxia deaths.<sup>1</sup> According to literature autoerotic asphyxia deaths, including plastic bag suffocation, occur mostly among young adult men.<sup>2</sup> Although two cases reported involved two young men, no evidence of autoerotic practice was founded. Despite the fact that forensic literature states that homicides by plastic bag asphyxia are rare,<sup>1</sup> in Colombia, according to our experience, it is a frequent method of torture and homicide. In two cases reported, the scene characteristics, the medical records and autopsy findings clearly discard this possibility. Although most plastic bag asphyxia deaths are suicides,<sup>1,3</sup> asphyxiation using a plastic bag remains as an unusual suicide method compare with other methods.<sup>4,5</sup> Some authors consider this practice as a painless, bloodless and non-violent method of self-destruction.<sup>6</sup> Other methods related with plastic bag asphyxia described in the literature, include use of inert gases like, propane<sup>7–9</sup> or helium<sup>10–12</sup> that hasten asphyxiation by displacing air gases (including oxygen) or the use of sedating doses of narcotic medication to facilitate asphyxiation.<sup>13</sup> Interestingly, Jones et al.<sup>3</sup> documented a bimodal peak in age of distribution among the victims, with one peak comprising mainly young adults and other mainly older women. Failed health of the decedent was the most commonly reported as stressor. In the 2 cases presented both victims were young adults and one had an important loss of vision of the right eye related with retinal detachment as stressor factor.

Although chloroform has well-known properties as an analgesic and anaesthetic agent and was used in clinical practice since 1847 until 1912 when the Committee on Anaesthesia of the American Medical Association stated that the use of chloroform as the anaesthetic for major surgery is no longer justifiable,<sup>14</sup> the substance is still frequently described in the forensic field. Payne,<sup>15</sup> describes in detail the use of chloroform to attempt a variety of crimes including rape, robbery, abduction, homicide and even a medical serial killer case. Flanagan and Pounder<sup>16</sup> described at least<sup>16</sup> references of violent deaths related with use of chloroform including homicide. Singer and Jones<sup>17</sup> and Musshoff and Padosch<sup>18</sup> et al. describe cases of accidental deaths in autoerotic context and deliberate inhalation respectively. Voluntary inhalation, ingestion or even injection of chloroform as a method to commit suicide is also well documented.<sup>19</sup> Chloroform is a colourless volatile liquid, non-flammable, insoluble in water, with a sweet odor that is used as a solvent in laboratory and manufacturing industry. Anaesthetic property of chloroform is due to binding to red blood cells and tissues. Because it interacts with certain nervous system receptors, chloroform has the characteristics of a strong central nervous system depressant. Fatal arrhythmia, mainly ventricular fibrillation



**Fig. 2.** Humid piece of cotton inside oral cavity found at autopsy.



**Fig. 3.** Two impregnated surgical masks around neck, previously found covering nose and mouth.

has also been described as a severe toxic effect of chloroform poisoning.<sup>19</sup> Ago et al.,<sup>20</sup> describes two fatalities associated with chloroform inhalation. They documented different degrees of erosion, hyperaemia in oesophagus, stomach and jejunum and hyperaemia and sub mucosal haemorrhage in the root of the tongue and trachea in pathological autopsy findings. They found important differences between the two cases, which may reflect differences in the time of exposure to chloroform.

In the two cases presented in this article chloroform was detected in blood and vitreous.

In second case blood concentrations was above 259 µg/ml which is a concentration that falls within the ranges of toxicity for this substance, although fatalities have been reported with levels between 10 and 194 µg/ml.<sup>20</sup> In the first case levels of 183 mg/dl of ethyl alcohol was documented. In both cases autopsy findings include hyperaemia of trachea, bronchus and stomach as well as unspecified hypoxic findings like generalized visceral congestion, pleural petechial and pulmonary enema. In both cases an impregnated element of chloroform (cotton and surgical mask respectively) were used in order to facilitate inhalation inside de plastic bag. For both cases utilization of central nervous system depressants (chloroform plus ethyl alcohol for the first case and only chloroform for the second case) could facilitate suffocation by rebreathing and/or obstruction of external airways. The cause of death in both cases was found to be by suffocation by plastic bag overhead and chloroform.

In recent decades, there have been publications that describe methods of committing suicide with very detailed instructions. Groups that defend euthanasia and the right to a dignified death promote some of these publications. Books like *Final Exit*, the practicalities of self-deliverance and assisted suicide for the dying,<sup>21</sup> suggest a suicide method of using a plastic bag over his head after ingestion of sleeping pills or other sedatives. After the publication of this book, an increase in suicides by suffocation with a plastic bag was documented in the city of New York.<sup>22</sup> Later the same author published *Supplement*<sup>23</sup> where he suggested adding to plastic bag, gases, particularly helium, partly because of its ease of attainment. After the publication of this book there have been multiple publications reported documenting cases of using helium inside a plastic bag: Ogden and Wooten<sup>10</sup> (South Carolina, 2002), Gilson et al.,<sup>11</sup> 7 cases, (Arizona, 2003), Schon and Ketterer (Switzerland, 2007).<sup>12</sup> In 2012 a publication called *How to Make Your Own Helium Hood Kit, Information for competent adults who are terminally or hopelessly ill and wish to die*<sup>24</sup> appeared as an addendum to Chapter 23 of “*Final Exit*” which is cited on many websites. Additionally, Athanaselis (2002)<sup>25</sup> describes the case of a death by asphyxia secondary to inhalation of ether in a plastic bag, following instructions from a website and a press article. Recently it has become easy to find websites, articles and blogs where easy, safe and painless methods to commit suicide are mentioned and discussed.

In the two cases presented in this article, the information about the use of chloroform and placing a plastic bag over the head as a suicide method was accessed through the Internet. In the first case the criminal investigators found in the personal computer of the victim, within the “favourites” column, several pages related to different ways to commit suicide. In the second case a printout of an Internet blog with instructions for using chloroform, was found. The instructions were, in fact, literally followed by the victim.

In the world today there is a lot of controversy regarding the true influence of the media in the increase of violent deaths. Media coverage of some crimes through television and Internet has been crucial in the dissemination of information about methods and strategies to commit them. Internet specifically allows quick and easy access to information related with methods of killing,

committing rape, substance abuse and even suicide. Other tools such as social networks are beyond the control of authorities, families and educators who could prevent the dissemination of such information. Even though euthanasia is an ethical and human principle that is worthy of being promoted and wide disseminated through the media, information related to methods of suicide and assisted suicide should not be made easily available on the Internet to the population in general and to children, adolescents or young adults, in particular, given that many of the suicides among young people are in fact preventable or treatable resorting to pharmacological or psychotherapeutic methods. This paper draws attention to the influence of literature and the media as a possible factor in increasing suicide cases especially among young people. It also seeks to emphasize the importance of proper scene investigation of suicide, especially of recording evidence of the methods and knowledge of substance lethality through sources of information, such as the Internet, to facilitate suicide was obtained.

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#### Conflict of interest

There is no conflict of interest, the author/institution do not have a financial or other relationship with other people or organizations that may inappropriately influence the authors' work.

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